

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/004036 A2

- (51) International Patent Classification⁷: **H01M 8/00** (74) Agent: PRINS, A.W.; NIEUWE PARKLAAN 97, NL-2587 BN DEN HAAG (NL).
- (21) International Application Number: PCT/NL2003/000482 (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 30 June 2003 (30.06.2003)
- (25) Filing Language: Dutch
- (26) Publication Language: English
- (30) Priority Data: 1020965 28 June 2002 (28.06.2002) NL
- (71) Applicant (*for all designated States except US*): NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-NATUURWETENSCHAPPELIJK ONDERZOEK TNO [NL/NL]; Schoemakerstraat 97, NL-2628 VK Delft (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): GERRITSE, Jan [NL/NL]; Oude Beekbergerweg 109, NL-7331 HN Apeldoorn (NL). SAAKES, Machiel [NL/NL]; Generaal van der Heydenlaan 3, NL-7316 BC Apeldoorn (NL). STAMS, Alfons, Johannes, Marla [NL/NL]; Gerdessstraat 8, NL-6701 AK Wageningen (NL).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BIOFUEL CELL

(57) ~~Abstract~~—The invention relates to a method for processing organic waste in an environmentally friendly manner, and to a device suitable thereto. According to the invention, the waste flow is processed in a bipolar biofuel cell. To this end, the waste is introduced into a space in which a pair of electrodes is present, which pair of electrodes comprises at least one anode and at least one cathode, while in a bipolar cell the anode and cathode are separated spatially and/or by a porous, electronically non-conductive, non-ion-selective wall, while an oxidizer is introduced in the space around the cathode, and where a potential difference is formed across said pair of electrodes such that at the anode CO₂ is produced and that electricity is produced. The method according to the invention can be carried out with waste flows comprising animal manure, waste water, waste water purification sludge, kitchen and garden waste (KGW), roadside grass, residual flows from industrial processes (such as molasses, whey, draff) and/or dredgings.



WO 2004/004036 A2